

Methylmercury Concentrations in NC's Top Five Marine Fish



**Luanne K. Williams, Pharm.D.
Toxicologist
NC Department of Health and Human
Services**

NC Mercury Fish Advisory Committee Members

- **NC Wildlife Resources
Commission**
- **NC Water Quality**
- **NC Fisheries Association**
- **NC Dept. of Agriculture
Aquaculture**
- **NC Marine Fisheries**
- **NC Department of Health and
Human Services**

NC Mercury Fish Advisory Committee

- Formed after changed advisory approach from location-specific to fish-specific in 2002
- Ample freshwater data but lacked methylmercury data on NC's top marine fish
- Risk communication strategies
- Inform committee of risks to developing child

New NC Fish Advice WCB and Children

- WCB and Children avoid consumption of 7 high methylmercury fish ≥ 0.4 ppm
- Shark, swordfish, king mackerel, tilefish, largemouth bass, bowfin, and chain pickerel
- Recommend two meals a week of low methylmercury fish because of health benefits

New NC Fish Advice General Public

- General public eat one meal a week of 7 high methylmercury fish ≥ 0.4 ppm
- Shark, swordfish, king mackerel, tilefish, largemouth bass, bowfin, and chain pickerel
- Recommend four meals a week of low methylmercury fish because of health benefits

Estimated Risks With New Advice

- According to FDA Model by Carrington and Bolger in *Risk Analysis* Volume 22 No. 4 2002
- 99% of people who eat two 6 oz meals a week of fish with avg. < 0.5 mg/kg below EPA recommended dose 0.1 ug/kg-d

Purpose of Sampling Top 5 Marine Fish

- Expand list of high methylmercury fish that should not be eaten by women of childbearing age and children
- Expand list of low methylmercury fish that should be eaten by women of childbearing age and children

NC's Top 5 Marine Fish

Expected Low Levels

- spot
- croaker
- kingfish or sea mullet

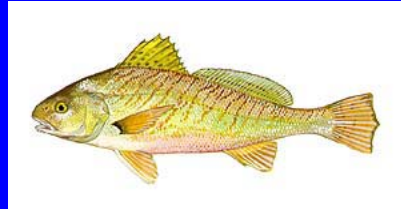
Expected High Levels

- bluefish
- speckled trout or spotted seatrout

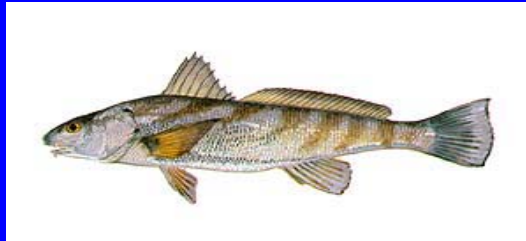
NC's Top Five Marine Fish



spot



croaker



kingfish or sea mullet

NC's Top Five Marine Fish



bluefish



**speckled trout or
spotted seatrout**

Collection of Ocean Fish

- **NC Division of Marine Fisheries**
- **Commercial and recreational fisheries**
- **Weighed, measured in length, filleted, skinned, wrapped in aluminum foil, frozen**
- **Analyzed**

Spot

- **25 fish (fillets)**
- **Mean length 9 inches**
- **Mean sample weight 0.5 lbs > mean weight 0.4 lbs spot caught recreationally in NC**
- **Mean methylmercury level 0.02 ppm**
- **Median methylmercury level 0.03 ppm**

Croaker

- 54 fish (14 fillets + 10 composites 4 fish/composite)
- Mean length 10 inches
- Mean sample weight 0.5 lbs slightly < mean weight 0.6 lbs croaker caught recreationally in NC
- Mean methylmercury level 0.06 ppm fillets and 0.07 ppm composites
- Median methylmercury level 0.04 ppm fillets and 0.07 ppm composites

Southern Kingfish or Sea Mullet

- 30 fish (10 composites 3 fish / comp)
- Mean length 11 inches
- Mean sample weight 0.5 lbs equal to mean weight 0.5 lbs Kingfish caught recreationally in NC
- Mean methylmercury level 0.08 ppm
- Median methylmercury level 0.07 ppm

Speckled Trout or Spotted Seatrout

- 26 fish (fillets)
- Mean length 17 inches
- Mean sample weight 2 lbs > mean weight 1.4 lbs Speckled Trout caught recreationally in NC
- Mean methylmercury level 0.11 ppm
- Median methylmercury level 0.08 ppm

Bluefish

- 57 fish (18 fillets + 17 composites 2-3 fish /comp)
- Mean length 14 inches
- Mean sample weight 1.7 lbs > mean weight 0.94 lbs Bluefish caught recreationally in NC
- Mean methylmercury level 0.12 ppm fillets and 0.17 composites
- Median methylmercury level 0.12 ppm fillets and 0.16 composites
- Largest 26 inches mean 0.4 ppm

NC Mercury Fish Advisory Committee Recommendations

- Add spot, croaker, kingfish, and speckled trout to list of fish that are safer to eat for women of childbearing age and children
- Not to add bluefish to list of fish that are safer to eat at this time
- Sample 20 bluefish 26 inches and larger

